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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/668,463

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Timothy J. Henly

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EXAMINER

GOLOBOY, JAMES C

ART UNIT

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1714

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/668,463	Applicant(s) HENLY, TIMOTHY J.	
	Examiner James Goloboy	Art Unit 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 and 36-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34, 36-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/3/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Please note the new examiner of record.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-5, 9-12, 17-20, 22-23, 25-34, 36-38, 41-43, 46, 49, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman (U.S. Pat. No. 5,942,470) in view of Hata (EP 1,057,884 A1).

From column 18 line 62 through column 19 lines 25 (including the two tables), Norman discloses lubricant compositions or additive concentrates comprising a succinimide friction modifier (component (iii)), as recited in claim 1(b), and a

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phosphorus-containing antiwear agent (component (ii)), as recited in claim 1(c). Norman additionally discloses that the composition optionally comprises at least one extra additive, which can be an amine salt of a carboxylic acid (component (iv)), which is an additional friction modifier, or a dispersant (component (v)), which can be borated, as in claim 1(a). When the borated dispersant is used as an extra additive while the amine salt of a carboxylic acid is excluded, the composition of Norman meets the limitations of claim 1. In column 20, Example 5, Norman exemplifies a concentrate comprising a dispersant, but not an amine salt of a carboxylic acid. When the dispersant of Example 5 is borated, as taught in column 15 lines 50-58, the composition meets the limitations of claim 1. In the first table in column 19, Norman teaches that the lubricant more preferably contains 0.3 to 2% by weight of the dispersant, overlapping the ranges recited in claims 22-23. In column 15 lines 7-17, Norman teaches that the dispersant is preferably an alkenyl succinimide, meeting the limitations of claims 9-11. The dispersant of Example 5 is formed from a tetraethylene polyamine, as in claim 12. The alkenyl is preferably polyisobutylene with a molecular weight of 750 to 2500, overlapping or encompassing the ranges of claims 17-20, 46, and 52. In column 14 line 21 Norman teaches that the dispersant can be a mixture ("at least one") of dispersants, as recited in claim 25.

In column 18 lines 40-60, Norman teaches that the base oils of the composition can be the base oils recited in claims 2-4.

From column 11 line 49 through column 12 line 8, Norman teaches that the succinimide friction modifier preferably has a structure meeting the limitations of claims

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27-30, as R_1 most preferably contains 20-24 carbon atoms, within the ranges recited in claims 27-29, and most preferably has the structure of the Z group in claim 30, while R_2 , R_3 , and R_4 are preferably hydrogen, forming the succinimide of claim 30. In the first table in column 19, Norman discloses that the composition comprises a friction-modifying amount of succinimide that is most preferably present in a concentration of 0.2 to 1% by weight, matching the range recited in claim 32 and overlapping the ranges of claims 33-34. In the examples of in columns 20-23, Norman teaches that the succinimide is the reaction product of succinic anhydride and ammonia, as recited in claim 26.

In structure III of column 4, Norman teaches that the phosphorus-containing antiwear agent can be an amine salt of a dihydrocarbyl phosphate, meeting the limitations of claims 36-37. Norman exemplifies various compounds meeting this limitation in columns 4-10. In column 4 lines 24-26 and 31-34 Norman teaches that the antiwear agent can comprise an amine salt of a sulfurized dibutyl hydrogen phosphate, as in claims 38 and 49. In the first table in column 19, Norman discloses that the composition most preferably comprises the antiwear agent in a concentration of 0.3 to 1% by weight, overlapping the ranges recited in claims 41-42.

In column 19 lines 34-60 Norman teaches that the composition can comprise additional additives recited in claim 43.

The difference between Norman and the currently presented claims are:

i) Norman does not disclose the composition as a power transmission fluid, specifically not disclosing a base oil with a viscosity within the range recited in claim 5.

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ii) Norman does not disclose the boron content of the borated dispersant. This relates to claim 1.

With respect to i), Hata discloses a composition for a power transmission, using a base oil with a viscosity of 3.62 cSt at 100 degrees C, within the range recited in claim 5, and incorporating a phosphorus-containing antiwear agent and borated dispersant.

With respect to ii), Hata discloses that the borated dispersant has a boron content of 0.35% by weight.

It would have been obvious to one of ordinary skill in the art to replace the base oil of Norman with the lower-viscosity base oils of Hata, as such base oils are more suitable for power transmission fluids. It would have been obvious to one of ordinary skill in the art to use a dispersant with a boron content taught by Hata as Hata teaches that such a boron content is suitable for power transmissions fluids.

5. Claims 1, 5-11, 24, 39-40, and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hata in view of Norman.

The discussion of Norman in paragraph 4 above is incorporated here by reference.

Hata, in paragraph 11, discloses a traction drive fluid for use in a continuously variable transmission, as in claims 44-45, comprising a phosphorus ester and a borated dispersant. In paragraphs 25-28, Hata teaches that the borated dispersant is a succinimide and can be a bis-succinimide, as in claims 9-10. The polyalkenyl group of the succinimide has a molecular weight of 500 to 3000, strongly overlapping the range

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recited in claim 46. In paragraph 47 Hata discloses a borated dispersant with a boron content of 0.35% by weight, falling within the ranges recited in claims 1 and 7-8, and is phosphorus-free as recited in claim 6. In paragraph 48 Hata discloses that the compositions use a base oil with a viscosity of 3.62 cSt at 100 degrees C, within the range recited in claim 5. In Table 1, Hata shows sample compositions with boron contents of between 60 and 100 ppm, within the range recited in claim 24, and phosphorus contents of 150 and 300 ppm, falling within the ranges of claims 39-40.

In paragraph 39, Hata teaches that the composition can contain a friction modifier, but does not teach specific friction modifiers. The use of the succinimide friction modifiers of Norman in the composition of Hata meets the limitations of claim 1 and its dependent claims.

It would have been obvious to one of ordinary skill in the art to use the succinimide friction modifiers of Norman in the lubricating composition of Hata, as Norman teaches that they are suitable friction modifiers for lubricating compositions, and can be used in combination with a borated dispersant and phosphorus-containing antiwear agent.

6. Claims 9, 15-16, 47, 50, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman in view of Hata as applied to claims 1-5, 9-12, 17-20, 22-23, 25-34, 36-38, 41-43, 46, 49, and 52 above, and further in view of Otto (U.S. Pat. No. 3,368,972).

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The discussion of Norman in view of Hata in paragraph 4 above is incorporated here by reference.

Norman in view of Hata discloses a lubricating composition meeting the limitations of claim 1, and in column 14 lines 26 and 64 teaches that the dispersant can be a Mannich-type dispersant, but does not disclose specific Mannich dispersants. However, Norman does disclose that the dispersants of Otto are suitable for use in the lubricating composition.

Otto, from column 1 line 63 through column 2 line 3 discloses Mannich-type dispersants, as in claim 9, that are the reaction product of an alkylphenol, an aldehyde, and an amine. In column 2 line 56, Otto teaches that polyalkene polyamines are typical amines for use in the reaction. The dispersants of Otto therefore meet the limitations of claims 15 and 47. In column 2 lines 4-7, Otto teaches that the reactant ratio is 1:0.1-10:0.1-10, overlapping the ratio recited in claim 16. In column 2 lines 2, Otto teaches that the alkyl substituent of the alkylphenol has a molecular weight of 600 to 3000, strongly overlapping the range recited in claims 50 and 52.

It would have been obvious to one of ordinary skill in the art to employ the Mannich-type dispersants of Otto in the composition of Norman and Hata, as Norman teaches that the dispersants of Otto are suitable.

7. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman in view Hata as applied to claims 1-5, 9-12, 17-20, 22-23, 25-34, 36-38, 41-43, 46, 49, and 52 above, and futher in view of Huffer (U.S. PG Pub. No. 2004/0180797).

The discussion of Norman in paragraph 4 above is incorporated here by reference. Norman teaches a composition comprising a borated succinimide dispersant meeting the limitations of claim 11, but does not disclose a preferred ratio of polyalkenyl succinic anhydride to polyalkylene polyamine.

Huffer, in paragraphs 30-33 discloses a dispersant formed from the reaction of a polyalkenyl succinic anhydride and a polyamine (paragraph 32). In paragraph 83 Huffer teaches that the ratio of bissuccinimide to monosuccinimides product can be controlled by adjusting the ratio of reactants, and that product with a higher bissuccinimide content are more suitable as lubricant additives. In paragraph 85, Huffer teaches that the preferred ratio of anhydride to amine is from 2.3 to 1.9, within the range recited in claim 13, and with the 2.3 fulfilling the "about 2.4" requirement of claim 14.

It would have been obvious to one of ordinary skill in the art to form the succinimide dispersant of Norman by reacting polyalkenyl succinic anhydride and polyalkylene polyamine in the ratio taught by Huffer in order to form a product with a higher bissuccinimide content.

8. Claims 15-16, 21, 48, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman in view of Hata as applied to claims 1-5, 9-12, 17-20, 22-23, 25-34, 36-38, 41-43, 46, 49, and 52 above, and further in view of Traise (U.S. Pat. No. 3,442,808).

The discussion of Norman in paragraph 4 above is incorporated here by reference. Norman teaches a composition comprising a borated dispersant meeting the limitations of claim 1, but does not disclose the further reaction of that dispersant, as recited in claim 21.

Traise, in column 1 lines 12-17 discloses the reaction product of an alkylphenol, aldehyde, and polyalkene polyamine, as recited in claim 15, which can be boronated and further reacted with an anhydride, as recited in claims 21, 48, and 51. In column 2 lines 26-28 Traise teaches that the reaction product is useful as a dispersant. In column 2 lines 43-46, Traise teaches that the alkylphenol, aldehyde, and polyalkene polyamine are reacted in a ratio of 1:1-2.5:0.5-2, strongly overlapping the ranges of claim 16.

It would have been obvious to one of ordinary skill in the art to react the Mannich-type dispersants of Norman with an anhydride, as taught by Traise, as Traise teaches in columns 6-7 (Engine Tests 1-7), that the post-treated dispersant exhibit superior performance.

Response to Arguments

9. Applicant's arguments with respect to claims 1-34 and 36-52 have been considered but are moot in view of the new ground(s) of rejection.

The notice of allowable subject matter in claims 15-16, 21, 47-48, and 50-51 indicated in the previous office action is withdrawn, and the claims are rejected for the reasons set forth above. Claims 15-16, 47, and 50 deal with Mannich-type dispersants,

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which are clearly suggested by Norman, and further taught by Otto and Traise. Claims 21, 48, and 51 recite post-treated dispersants, which are also taught by Traise.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sumiejski (U.S. PG Pub. No. 2005/0014656) discloses power transmission fluid comprising a phosphorus-containing antiwear agent, a borated dispersant, and a friction modifier, but not a friction modifier that is the reaction product of an acid or anhydride with ammonia.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Goloboy whose telephone number is 571-272-2476. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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